



SOLDERTEC 9010

Bright Acid Tin/Lead

INTRODUCTION

Soldertec 9010 is a bright tin-lead plating process for barrel and rack applications utilizing a Methane Sulfonic Acid electrolyte. Deposits exhibit a very high degree of brilliance and show good conductivity and solderability. Soldertec 9010 operates over a wide CD range for increased output and flexibility in production. It also exhibits good throwing power and distribution characteristics.

BENEFITS

- Fully bright deposits.
- Excellent solderability.
- High ductility.
- Wide current density range - excellent bright throwing power.
- Low tendency to Sn^{4+} formation.

SOLUTION MAKE-UP

Soldertec Tin MSA (ml/L)	69	
Soldertec Lead MSA (ml/L)	11	
Soldertec NF acid (ml/L)	167	
Soldertec 9010 Carrier (ml/L)		90
Soldertec 9010 Brightener (ml/L)	2	
Soldertec 9010 Additive (ml/L)	10	

1. Clean the process tank with water and leach the tank with Soldertec NF acid (3-5%) overnight pumping through all filters, pumps and pipework.
2. Pump out acid and rinse thoroughly with water.
3. $\frac{1}{2}$ fill the tank with cold deionised water.
4. Add Soldertec NF acid with continuous stirring.
5. Add Soldertec Lead MSA with continuous stirring.
6. Add Soldertec Tin MSA with continuous stirring.
7. Add Soldertec 9010 Carrier and Brightener with stirring.
8. Add Soldertec 9010 Additive with stirring
9. Top up with deionised water and stir thoroughly.



OPERATING DATA

Stannous tin (g/L)	17 – 25 (21)
Lead (g/L)	2 – 4 (3)
Soldertec NF Acid (ml/L)	150 – 200 (167)
Temperature (°C)	20 -25
Cathode current density (A/dm ²)	0.1 - 5
Agitation	Cathode movement 1 – 3m/min or barrel rotation
Anodes	90 Tin / 10 Lead
Deposition Rate	1µm/min at 2 asd

EQUIPMENT

Tanks	Polypropylene, polyethylene or PVDC.
Heaters	PVDF immersion with thermostatic control.
Cooling	PTFE or titanium coils.
Filtration	Continuous through 5µm polypropylene cartridges, 3 turnovers per hour.
Extraction	Recommended
Anodes	90 Tin / 10 Lead

MAINTENANCE AND CONTROL

The stannous tin and Soldertec NF acid should be analysed regularly using the methods detailed in the Data Sheet.

	Rack and Barrel
Soldertec 9010 Carrier	150 - 250 ml/1000Ahr
Soldertec 9010 Brightener	25 – 50 ml/1000Ahr
Soldertec 9010 Additive	10 – 20 ml/1000Ahr

During idle periods the bath should be continuously filtered. After extended shut down (>5 days) an addition of 1 – 1.5ml/L Soldertec 9010 Brightener may be required.



Post Treatment For optimum solderability a post plate rinse with Neutra Aid 68 is recommended before final rinsing and drying.

ANALYSIS METHODS

1. Stannous tin

Reagents

Concentrated hydrochloric acid.
Sodium bicarbonate
Iodine indicator.
0.1N iodine.

Method

1. Pipette 5ml of the plating solution into a 250ml conical flask.
2. Add 5ml conc hydrochloric acid
3. Add approximately 100ml deionised water.
4. Add 1-2g sodium bicarbonate
5. Add a few drops iodine indicator.
6. Titrate with 0.1N iodine to a permanent blue end point.
7. Record titre = t mls.

Calculation

$t \times 1.187 = \text{g/L tin.}$

Replenishment

For every 1g/L tin low, add 3.3ml/L Soldertec Tin MSA (300g/L)

2. Soldertec NF Acid

Reagents

4% Ammonium oxalate (Dissolve 40g of Ammonium oxalate in deionised water and dilute to 1 litre)
1.0N Sodium Hydroxide
Methyl Red Indicator

Method

1. Pipette 10ml of the plating solution into a 250ml conical flask.
2. Add 100 ml of 4% Ammonium oxalate.
3. Add 5 drops Methyl red indicator



4. Titrate with 1.0N sodium hydroxide mixing thoroughly during additions to a yellow end point.
5. Record titre = t mls.

Calculation

$t \times 10.15 = \text{ml/L Soldertec NF acid.}$

3. Lead

Reagents

0.1M EDTA solution (standard volumetric solution)

0.1M Zinc Sulphate solution (standard volumetric solution)

Hydrogen Peroxide (100vol)

Triethanolamine 20% v/v

Ammonia/Ammonium Chloride Buffer solution - dissolve 54gm ammonium chloride in 500ml deionised water. Add 350ml 0.88 S.G. ammonia and make up to 1 litre.

Eriochrome Black T indicator.

Method

1. Pipette a 5ml bath sample into a 250ml conical flask.
2. Add 100ml de-ionised water.
3. Add 1ml of Hydrogen Peroxide.
4. Transfer 10ml of 0.1M EDTA from a burette into the flask and mix well.
5. Add 5ml of 20% v/v Triethanolamine
6. Add 20ml of Ammonium Chloride buffer.A
7. Add a 'pinch' of Eriochrome Black T indicator and titrate with 0.1M Zinc Sulphate solution (standard volumetric solution) to a purple end point.
8. Record titre as A.

Standardisation of Zinc Sulphate

1. Transfer 10ml of 0.1M EDTA from a burette into conical flask and dilute to 100ml with de-ionised water.
2. Add 20ml of Ammonium chloride buffer solution and a 'pinch' of Eriochrome Black T indicator.



3. Titrate with 0.1M Zinc Sulphate solution (standard volumetric solution) to a purple end point.
4. Record as titre B

Calculation:

$$(1 - A \text{ divided by } B) \times 41.44 = \text{g/L Lead}$$

For every 1g/L lead low, add 3.7ml/L Soldertec Lead MSA

DISPOSAL

Dispose of through an approved specialist contractor.

PRODUCT FAMILIES

The following products are referred to in this data sheet.

PRODUCT NAME	PRODUCT NUMBER
Soldertec NF Acid	577011
Soldertec Tin MSA	577009
Soldertec Lead MSA	577010
Soldertec 9010 Carrier	577021
Soldertec 9010 Brightener	577020
Soldertec 9010 Additive	577022
Neutra Aid 68	206035

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